IN THE SPECIFICATION:

In column 2, at lines 18-45, please amend the paragraph as indicated below:

A2

In one currently preferred embodiment, the invention accordingly provides for a method for detecting disconnection [or occlusion] of a patient tubing system of a pneumatically driven, electronically controlled ventilator system used to provide [for providing] breathing gas to a patient [during the exhalation phase of a breath cycle, the exhalation phase having a plurality of control intervals, with each of the control intervals having a predetermined duration]. A method of the invention comprises the steps of [delivering a flow of breathing gas to a patient during an inspiratory phase of a breath cycle,] determining an onset of an exhalation phase of the breath cycle, [suspending gas flow delivery to the patient tubing system during the exhalation phase of the breath cycle,] and monitoring exhalation flow and pressure in the patient tubing system during a plurality of control intervals of the exhalation phase of the breath cycle to determine whether a condition indicating disconnection of the patient tubing system has occurred. The exhalation pressure in the patient tubing system is monitored during a plurality of control intervals of the exhalation phase of the breath cycle to determine whether a condition indicating occlusion of the patient tubing system has occurred; and a disconnection signal indicating disconnection of the patient tubing system is generated responsive to the exhalation flow and the pressure in the patient tubing system if the condition indicating occlusion of the patient

A2 cont'd

tubing system has not occurred, and if the condition indicating disconnection of the patient tubing system has occurred.

From column 2, line 46, to column 3, line 6, please amend the paragraph as indicated below:

A3

In another currently preferred embodiment, the invention provides for a system for detecting disconnection [or occlusion] of a patient tubing system of a pneumatically driven, electronically controlled ventilator system used to provide [for providing] breathing gas to a patient [during the exhalation phase of a breath cycle, the exhalation phase having a plurality of control intervals, with each of the control intervals having a predetermined duration]. The system comprises [means for delivering a flow of breathing gas to a patient during an inspiratory phase of a breath cycle,] means for determining an onset of an exhalation phase of the breath cycle, [means for suspending gas flow delivery to the patient tubing system during the exhalation phase of the breath cycle,] and means for monitoring exhalation flow and pressure in the patient tubing system during a plurality of control intervals of the exhalation phase of the breath cycle to determine whether a condition indicating disconnection of the patient tubing system has occurred. The system may include means for monitoring exhalation pressure in the patient tubing system during a plurality of control intervals of the exhalation phase of the breath cycle to determine whether a condition indicating occlusion of the patient tubing system has occurred, and means for generating a

disconnection signal indicating disconnection of the patient tubing system responsive to the exhalation flow and the pressure in the patient tubing system if the condition indicating occlusion of the patient tubing system has not occurred, and if the condition indicating disconnection of the patient tubing system has occurred.

In column 3, at lines 16-35, please amend the paragraph as indicated below:

The invention also provides for a method for detecting occlusion of a patient tubing system of a pneumatically driven, electronically controlled ventilator system used to provide [for providing] breathing gas to a patient [during the exhalation phase of a breath cycle, the exhalation phase having a plurality of control intervals, each of the control intervals having a predetermined duration]. A method of the invention comprises the steps of delivering a flow of breathing gas to a patient during an inspiratory phase of a breath cycle, determining an onset of an exhalation phase of the breath cycle, [suspending gas flow delivery to the patient tubing system during the exhalation phase of the breath cycle,] monitoring delivered flows and exhaled flows; monitoring exhalation pressure in the patient tubing system during a plurality of control intervals of the exhalation phase of the breath cycle to determine whether a condition indicating occlusion of the patient tubing system has occurred; and generating a occlusion, signal indicating occlusion of the patient tubing system responsive to the pressure in the patient tubing system if the condition indicating occlusion of the patient tubing system has occurred.

In column 3, at lines 36-56, please amend the paragraph as indicated below:

A5

~~In another presently preferred~~ embodiment, the invention provides for a system for detecting occlusion of a patient tubing system of a pneumatically driven, electronically controlled ventilator system used to provide [for providing] breathing gas to a patient [during the exhalation phase of a breath cycle, the exhalation phase having a plurality of control intervals, with each of the control intervals having a predetermined duration]. The system comprises means for delivering a flow of breathing gas to a patient during an inspiratory phase of a breath cycle, means for determining an onset of an exhalation phase of the breath cycle, [means for suspending gas flow delivery to the patient tubing system during the exhalation phase of the breath cycle,] means for monitoring delivered flows and exhaled flows, means for monitoring exhalation pressure in the patient tubing system during a plurality of control intervals of the exhalation phase of the breath cycle to determine whether a condition indicating occlusion of the patient tubing system has occurred, and means for generating an occlusion signal indicating occlusion of the patient tubing system responsive to the pressure in the patient tubing system if the condition. indicating occlusion of the patient tubing system has occurred.

From column 3, line 57, to column 4, line 3, please amend the paragraph as indicated below:

A6

[In a presently preferred embodiment, the invention also provides for

generation of an occlusion signal indicating occlusion of the patient tubing system if the condition indicating occlusion of the patient tubing system has occurred.] In a currently preferred embodiment, an occlusion alarm signal is generated, the exhalation valve is opened, an idle flow is delivered, and flow and pressure are monitored in an occlusion status cycling mode to determine whether a condition indicating abatement of occlusion of the patient tubing system has occurred. The invention also provides for initiation of the resumption of flow of breathing gas to the patient tubing system during an inspiratory phase of a breath cycle if a condition indicating abatement of occlusion of the patient tubing system has occurred.

From column 4, line 66, to column 5, line 25, please amend the paragraph as indicated below:

In a first set of criteria, a condition indicating disconnection of the patient tubing system has occurred can be declared if, during a control interval, the pressure in the tubing system as sensed by a pressure sensor in the exhalation line of the tubing system falls [outside] <u>within</u> a [desired,] predetermined range, and exhalation flow is less than a desired, predetermined threshold, for a contiguous period of consecutive control intervals within a predetermined initial period of time following onset of an exhalation phase. In a preferred embodiment of the first set of criteria, the control interval is 5 msec., and all of the following three conditions must be met at some time during the first 200 msec. of an exhalation phase,

for a contiguous period of 100 consecutive milliseconds:

If Pat_press(n) $\geq$ -0.5 $cmH_2O$

AND Pat_Press (n) $\leq$ 0.5 $cmH_2O$

AND Dry_exh_flow(n) $\leq$ 0.5 lpm

where Pat_press (n) is the pressure in the tubing system as sensed by a pressure sensor in the exhalation line of the tubing system during a control interval, and Dry_exh_flow (n) is the exhalation flow as measured by the exhalation flow sensor, compensated for the breathing gas mix and for humidity in the gas to represent dry conditions. Typically, an estimated amount of water vapor flow is removed from the initial flow measurement from the exhalation flow sensor Exh_flow. Then, the remaining dry flow is compensated for the expected gas mix ($N_2$, $O_2$).

In column 9, at lines 42-48, please amend the paragraph as indicated below:

For occlusion detection purposes Eq. 5 is modified to account for the pressure and flow [low] sensor accuracies (i.e. offset & gain drift). The determination of dP is thus typically adjusted for such factors as offset and gain drift, based upon the following equation:

$$dP_{meas} = (P_{insp} - P_{exh}) - (0.7 + Abs(P_{insp}) * 0.062) \quad \text{(Eq. 6)}$$